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World Intellectual Property Organization (WIPO) - Geneva, Switzerland
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1323395

THE UNITED STATES OF AMERICA

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United States Patent and Trademark Office

May 18, 2005

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APPLICATION NUMBER: 60/562,435

FILING DATE: *April 15, 2004*

RELATED PCT APPLICATION NUMBER: *PCT/US05/12690*



Certified by

Under Secretary of Commerce
for Intellectual Property
and Director of the United States
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PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 C.F.R. 1.53 (b)(2).

| | | | |
|---------------|---------|--|---|
| Docket Number | 1366US1 | Type a plus sign (+) inside this box → | X |
|---------------|---------|--|---|

| INVENTOR(s)/APPLICANT(s) | | | |
|--------------------------|------------|----|--|
| Last Name | First Name | MI | Residence (City and either State or Foreign Country) |
| Stone | Theodore | J. | St. Louis Park, Minnesota |
| Palaschewski | Wade | D. | Andover, Minnesota |
| Nguyen | Vu | K. | Brooklyn Park, Minnesota |
| Van Keulen | Dennis | J. | Rogers, Minnesota |

| TITLE OF THE INVENTION |
|---|
| Automatic Dose Size Selection for Multi-Component Fluid Proportioners |

| CORRESPONDENCE ADDRESS |
|---|
| Graco Minnesota Inc. P. O. Box 1441 Minneapolis |

| | | | | | |
|-------|-----------|---------|------------|---------|--------|
| STATE | Minnesota | ZIPCODE | 55440-1441 | COUNTRY | U.S.A. |
|-------|-----------|---------|------------|---------|--------|

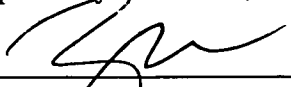
| ENCLOSED APPLICATION PARTS (check all that apply) | | | |
|---|---------------|--------------------|---|
| <input checked="" type="checkbox"/> | Specification | Number of Pages 5 | <input type="checkbox"/> Small Entity Statement |
| <input checked="" type="checkbox"/> | Drawing(s) | Number of Sheets 1 | <input type="checkbox"/> Other (specify) |

| METHOD OF PAYMENT (check one) | | |
|-------------------------------------|--|------------------------------------|
| <input type="checkbox"/> | A check or money order is enclosed to cover the Provisional filing fees | Provisional Filing Fee Amount (\$) |
| <input checked="" type="checkbox"/> | The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number: 07-1775 | \$160.00 |

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

- ☒ No.
☐ Yes, the name of the U. S. Government agency and the Government contract number are:

Respectfully submitted,

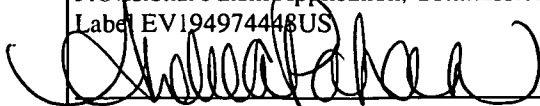

 Douglas B. Farrow


Date: April 15, 2004
 Reg. No.: 28582

- ☐ Additional inventors are being named on separately numbered sheets attached hereto.

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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37CFR 1.10 on the date indicated below and is addressed to Mail Stop-Provisional Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. Mailing Label EV194974448US


 Andrea Pahan
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16235 U.S.PTO
 60/562435

 041504

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**Fee Transmittal
for FY 2003**

Effective 01/01/2003. Patent Fees are subject to annual revision.

Complete if Known

| | |
|----------------------|---------|
| Application Number | |
| Filing Date | |
| First Named Inventor | Stone |
| Examiner Name | |
| Art Unit | |
| Attorney Docket No. | 1366US1 |

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 160.00)**METHOD OF PAYMENT (check all that apply)**
☐ Check ☐ Credit card ☐ Money order ☐ Other ☐ None
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07-1775

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☒ Charge fee(s) indicated below ☐ Credit any overpayments☐ Charge any additional fee(s) during the pendency of this application☐ Charge fees(s) indicated below, except for the filing fee to the above-identified deposit account**FEE CALCULATION****1. BASIC FILING FEE**

| Large Entity | | Small Entity | | Fee Description | Fee Paid |
|--------------|----------|--------------|----------|------------------------|-------------|
| Fee Code | Fee (\$) | Fee Code | Fee (\$) | | |
| 1001 | 770 | 2001 | 385 | Utility filing fee | |
| 1002 | 340 | 2002 | 170 | Design filing fee | |
| 1003 | 530 | 2003 | 265 | Plant filing fee | |
| 1004 | 770 | 2004 | 385 | Reissue filing fee | |
| 1005 | 160 | 2005 | 80 | Provisional filing fee | 160.00 |
| SUBTOTAL (1) | | | | | (\$ 160.00) |

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

| | | Extra Claims | | Fee from below | | Fee Paid | |
|--------------------|--|--------------|--|----------------|--|----------|--|
| Total Claims | | -20** = | | X | | = | |
| Independent Claims | | -3** = | | X | | = | |
| Multiple Dependent | | | | | | = | |

| Large Entity | | Small Entity | | Fee Description | Fee Paid |
|--------------|----------|--------------|----------|---|----------|
| Fee Code | Fee (\$) | Fee Code | Fee (\$) | | |
| 1202 | 18 | 2202 | 9 | Claims in excess of 20 | |
| 1201 | 86 | 2201 | 43 | Independent claims in excess of 3 | |
| 1203 | 290 | 2203 | 145 | Multiple independent claim, if not paid | |
| 1204 | 86 | 2204 | 43 | **Reissue independent claims over original patent | |
| 1205 | 18 | 2205 | 9 | **Reissue claims in excess of 20 and over original patent | |
| SUBTOTAL (2) | | | | | (\$) |

** or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**


| Large Entity | | Small Entity | | Fee Description | Fee Paid |
|---------------------|----------|--------------|----------|--|----------|
| Fee Code | Fee (\$) | Fee Code | Fee (\$) | | |
| 1051 | 130 | 2051 | 65 | Surcharge - late filing fee or oath | |
| 1052 | 50 | 2052 | 25 | Surcharge - late provisional filing fee or cover sheet | |
| 1053 | 130 | 1053 | 130 | Non-English Specification | |
| 1812 | 2,520 | 1812 | 2,520 | For filing a request or ex parte reexamination | |
| 1804 | 920* | 1804 | 920* | Requesting publication of SIR prior to Examiner action | |
| 1805 | 1,840* | 1805 | 1,840* | Requesting publication of SIR after Examiner action | |
| 1251 | 110 | 2251 | 55 | Extension for reply within first month | |
| 1252 | 420 | 2252 | 210 | Extension for reply within second month | |
| 1253 | 950 | 2253 | 475 | Extension for reply within third month | |
| 1254 | 1,480 | 2254 | 745 | Extension for reply within fourth month | |
| 1255 | 2,010 | 2255 | 1,005 | Extension for reply within fifth month | |
| 1401 | 330 | 2401 | 165 | Notice of Appeal | |
| 1402 | 330 | 2402 | 165 | Filing a brief in support of an appeal | |
| 1403 | 290 | 2403 | 145 | Request for oral hearing | |
| 1451 | 1,510 | 1451 | 1,510 | Petition to institute a public use proceeding | |
| 1452 | 110 | 2452 | 55 | Petition to revive - unavoidable | |
| 1453 | 1,330 | 2453 | 665 | Petition to revive - unintentional | |
| 1501 | 1,330 | 2501 | 665 | Utility issue fee (or reissue) | |
| 1502 | 480 | 2503 | 240 | Design issue fee | |
| 1503 | 640 | 2503 | 320 | Plant issue fee | |
| 1460 | 130 | 1460 | 130 | Petitions to the Commissioner | |
| 1807 | 50 | 1807 | 50 | Processing fee under 37 CFR 1.17(a) | |
| 1806 | 180 | 1806 | 180 | Submission of Information Disclosure Stmt | |
| 8021 | 40 | 8021 | 40 | Recording each patent assignment per property (times number of properties) | |
| 1809 | 770 | 2809 | 385 | Filing a submission after final rejection (37 CFR 1.129(a)) | |
| 1810 | 770 | 2810 | 385 | For each additional invention to be examined 37 CFR 1.129(b)) | |
| 1801 | 770 | 2801 | 385 | Request for Continued Examination (RCE) | |
| 1802 | 900 | 1802 | 900 | Request for expedited examination of a design application | |
| Other Fee (Specify) | | | | | |

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3)

SUBMITTED BY

(Complete if applicable)

| | | | | | |
|-------------------|---|-----------------------------------|----------------|-----------|--------------|
| Name (Print/Type) | Douglas B. Farrow | Registration No. (Attorney/Agent) | 28582 | Telephone | 612-623-6769 |
| Signature |  | Date | April 15, 2004 | | |

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This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket Number: 1366US1

| | |
|---------------------------------|--|
| Inventor's Names and Addresses: | Theodore J. Stone 1654 Utah Drive South St. Louis Park, Minnesota 55426 Wade D. Palashewski 14410 Yucca Street NW Andover, Minnesota 55304 Vu K. Nguyen 9916 Linden Avenue North Brooklyn Park, Minnesota 55443 Dennis J. Van Keulen 11145 Valley Drive Rogers, Minnesota 55374 |
| Citizenship: | All United States of America |
| Title of Invention: | Automatic Dose Size Selection for Multi-Component Fluid Proportioners |
| Send all Correspondence to: | Douglas B. Farrow Corporate Intellectual Property Counsel Graco Minnesota Inc. P. O. Box 1441 Minneapolis, MN 55440 |

AUTOMATIC DOSE SIZE SELECTION FOR
MULTI-COMPONENT FLUID PROPORTIONERS

TECHNICAL FIELD

5 This application claims the benefit of US Application serial number _____
_____, filed _____.

BACKGROUND ART

10 Devices for dispensing plural component materials have become increasingly
popular in recent years, as such materials have assumed more widespread usage in
industry. As used herein, a catalyst (or first fluid) is mixed with a resin (or second fluid).
While the terms catalyst and resin are used for purposes of convenience in reference, it is
understood that other plural component systems may be utilized which might not normally
utilize such terminology.

15 Also known are systems such as those sold under the PRECISION-MIX trademark
by the assignee of the instant invention and generally described in European patent
number 116879 and US patent no. 5,368,059, the contents of which are both hereby
incorporated by reference. In such systems, the two fluids to be dispensed both have a
flow meter and a valve associated with them. A fixed amount of the first fluid is dispensed
20 into a mixer and then a fixed amount of the second fluid is dispensed into the mixer,
whereupon the process is repeated. Traditionally, electronic proportioners have required

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that the dose size either be fixed or entered by the user. Selecting the appropriate dose size has been dependent on factors such as flow rate, viscosity, and mix ratio. This invention allows for better overall mix performance and improved usability since there is no input from the user required.

5

DISCLOSURE OF THE INVENTION

In the method of the instant invention, after a selected number of doses have been dispensed, the system stops and calculates how many of those doses have fallen within a predetermined tolerance of the desired ratio between the two materials. If too many doses
10 fall outside the tolerance, the dose size is decreased. This process is repeated until the appropriate number of doses fall within the desired tolerance.

These and other objects and advantages of the invention will appear more fully from the following description made in conjunction with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the several
15 views.

BRIEF DESCRIPTION OF DRAWINGS

Figure 1 is a flow chart showing the dose selection method of the instant invention.

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BEST MODE FOR CARRYING OUT THE INVENTION

Figure 1 shows a flow chart detailing the instant invention. In the method of the instant invention, a selected number of doses are dispensed. The system then stops and calculates how many of those doses have fallen within a predetermined tolerance (98% in the preferred embodiment) of the desired ratio (e.g. 2:1) between the two materials. If too many doses fall outside the tolerance, the dose size is decreased from the initial setting (50cc in the preferred embodiment). This process is repeated until the appropriate number of doses fall within the desired tolerance.

It is contemplated that various changes and modifications may be made to the method without departing from the spirit and scope of the invention as defined by the following claims.

CLAIMS

1. A method of setting dose size for a plural component sequential metering system for dispensing materials having at least first and second components and comprising the steps of:

5 dispensing a plurality of doses of plural component material;

measuring the ratio between said components in said plurality of doses;

determining the number of said plurality which fall within a predetermined tolerance of the desired ratio; and

decreasing said dose size when the number of doses falling outside said
10 predetermined tolerance exceeds a predetermined level

ABSTRACT

The invention is for use with a plural component sequential metering system. In the method of the invention, after a selected number of doses have been dispensed, the system stops and calculates how many of those doses have fallen within a predetermined
5 tolerance of the desired ratio between the two materials. If too many doses fall outside the tolerance, the dose size is decreased. This process is repeated until the appropriate number of doses fall within the desired tolerance.

